We claim:

1. A method of forming a web comprising:

discharging stock flow from a headbox onto a wire, the stock flow including water and fibers;

transferring a vibrational force to the wire by directly contacting the wire with a vibrating element;

changing at least one of the speed at which the wire is travelling and the frequency of the vibrational force independently of the frequency of the vibrational force and the speed at which the wire is travelling, respectively; and

draining at least some of the water from the stock flow to cause the fibers to form a web.

2. The method of claim 1, wherein transferring a vibrational force to the wire includes transferring a vibrational force having a frequency of at least 1,000 Hertz.

3. The method of claim 1, wherein the wire has a cross-machine direction, and wherein changing the frequency of the vibrational force transferred to the wire includes changing the frequency of the vibrational force transferred to a first section of the wire in the cross-machine direction and independently changing the frequency of the vibrational force transferred to a second section of the wire in the cross-machine direction.

4. The method of claim 1, further comprising adjusting an amplitude of the vibrational force transferred to the wire independently of at least one of the frequency of the vibrational force and the speed at which the wire is travelling.

5. The method of claim 1, wherein transferring a vibrational force to the wire includes transferring a vibrational force to an underside of a substantially horizontal wire.

6. The method of claim 1, wherein transferring a vibrational force to the wire includes transferring a vibrational force to the wire during formation of an embryonic web.

7. The method of claim 6, wherein transferring a vibrational force to the wire includes transferring a vibrational force to the wire before the web has a fibrous consistency of approximately 5 percent.

8. The method of claim 1, wherein the vibrating element is a vibrational head coupled to a vibrating device in a papermaking machine, the method further comprising replacing the vibrational head with another vibrational head during operation of the papermaking machine.

9. The method of claim 1, wherein the vibrating element is coupled to a frame of a papermaking machine, the method further comprising damping vibrations from the papermaking machine to the vibrating element.

10. The method of claim 1, further comprising lubricating the wire upstream of the vibrating element.

11. A vibrational device for use with a papermaking machine, the papermaking machine including a wire for receiving stock flow, the vibrational device comprising:

a vibrational device frame;

at least one vibration-inducing mechanism coupled to the vibrational device frame, the at least one vibration-inducing mechanism operable to generate a vibrational force having a frequency that is independent of a speed at which the wire is travelling; and

a vibrational head coupled to the at least one vibration-inducing mechanism and in direct contact with the wire to impart the vibrational force to the wire.

12. The vibrational device of claim 11, wherein the frequency of the vibrational force is adjustable.

13. The vibrational device of claim 11, wherein the vibrational head has a range of vibrational movement and is in direct contact with the wire in only part of the range of vibrational movement.

14. The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism is a pneumatic mechanism operable to generate a vibrational force having a frequency of at least 1,000 Hertz.

15. The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism is an electro-magnetic mechanism operable to generate a vibrational force having a frequency of at least 1,000 Hertz.

16. The vibrational device of claim 11, wherein the vibrational device has at least two vibration-inducing mechanisms, at least one of the vibration-inducing mechanisms controllable independently of another of the vibration-inducing mechanisms to vary vibrational forces between different vibrational heads.

17. The vibrational device of claim 11, wherein the wire has a cross-machine direction, and wherein a first one of the at least one vibration-inducing mechanism generates a first vibrational force having a first frequency transferred through a corresponding vibrational head to a first section of the wire in the cross-machine direction, and wherein a second one of the at least one vibration-inducing mechanism generates a second vibrational

force having a different second frequency transferred through a corresponding vibrational head to a second section of the wire in the cross-machine direction.

18. The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism generates a vibrational force of approximately 20 to 7000 pounds having an amplitude of to up to approximately 0.120 inches.

19. The vibrational device of claim 11, wherein the vibrational device is positioned beneath the wire.

20. The vibrational device of claim 11, wherein the papermaking machine has a papermaking machine frame and wherein the vibrational device frame is mountable on the papermaking machine frame.

21. The vibrational device of claim 11, wherein the vibrational device frame extends substantially across the wire.

22. The vibrational device of claim 11, wherein the at least one vibration-inducing mechanism and the vibrational head are coupled via a sliding connection enabling removal of the vibrational head from the vibrational device.

23. The vibrational device of claim 22, wherein the sliding connection is one of a dovetail connection and a T-shaped connection.

24. The vibrational device of claim 11, further comprising a vibration isolator coupled to the vibrational head and positioned to absorb vibrations from the papermaking machine.

25. The vibrational device of claim 11, wherein the vibrational head extends substantially across the wire.

26. The vibrational device of claim 11, wherein the vibrational head has a land area positioned at an angle with respect to the wire and through which the vibrational force is transmitted from the vibrational head to the wire.

27. The vibrational device of claim 26, wherein the vibrational head includes an upstream portion which slopes away from the wire at an angle of between 0 to 15 degrees to push water into the wire during movement of the wire.

28. The vibrational device of claim 26, wherein the vibrational head includes a downstream portion which slopes away from the wire at an angle of between 0 to 5 degrees to induce a vacuum between the wire and the downstream portion of the vibrational head.

29. The vibrational device of claim 26, wherein the land area is convex.

30. A method of forming a web comprising:

discharging stock flow onto a wire, the stock flow including water and fibers, the wire having a cross-machine direction;

transferring a first vibrational force to a first section of the wire, the first vibrational force having a first frequency;

transferring a second vibrational force to a second section of the wire disposed from the first section of the wire in the cross-machine direction, the second vibrational force having a second frequency that is different from the first frequency; and

draining at least some of the water from the stock flow to cause the fibers to form a web.

31. The method of claim 30, further comprising changing at least one of the first frequency of the first vibrational force and the second frequency of the second vibrational force independently of a speed of the wire.

32. The method of claim 30, further comprising changing the first frequency of the first vibrational force independently of the second frequency of the second vibrational force.

33. The method of claim 30, wherein the first vibrational force has a first amplitude and the second vibrational force has a second amplitude, the method further comprising changing the first amplitude of the first vibrational force independently of the second amplitude of the second vibrational force.

34. The method of claim 30, wherein the transferring a first vibrational force and transferring a second vibrational force includes transferring the first vibrational force and transferring the second vibrational force to the wire in a wet-end section of a papermaking machine during formation of an embryonic web.

35. The method of claim 30, wherein transferring a first vibrational force includes transferring vibrational force from a first vibration-inducing mechanism to a vibrational head; and transferring a second vibrational force includes transferring vibrational force from a second vibration-inducing mechanism to the vibrational head.

36. The method of claim 30, wherein transferring a first vibrational force includes transferring vibrational force from a first vibration-inducing mechanism to a first vibrational

head in contact with the wire; and transferring a second vibrational force includes transferring vibrational force from a second vibration-inducing mechanism to a second vibrational head in contact with the wire.

37. The method of claim 36, further comprising removing and replacing at least one of the vibrational heads during the discharging, transferring, and draining steps.

38. The method of claim 36, wherein the wire is part of a papermaking machine having a frame, the method further comprising damping vibrations from the first and second vibration-inducing mechanisms to the papermaking machine frame.

39. The method of claim 30, further comprising lubricating the wire with water upstream of the first and second sections of the wire.

40. A vibrational device for use with a papermaking machine, the papermaking machine including a wire for receiving stock flow, the vibrational device comprising:

a vibrational device frame;

a first vibration-inducing mechanism coupled to the vibrational device frame, the first vibration-inducing mechanism operable to generate a first vibrational force having a first frequency;

a second vibration-inducing mechanism coupled to the vibrational device frame, the second vibration-inducing mechanism operable to generate a second vibrational force having a second frequency different from the first frequency; and

a vibrational head coupled to the first vibration-inducing mechanism and to the second vibration-inducing mechanism and directly contacting the wire to impart the first vibrational force and the second vibrational force to the wire.

41. The vibrational device of claim 40, wherein the first frequency and the second frequency are independent of a speed at which the wire travels.

42. The vibrational device of claim 40, wherein the first vibration-inducing mechanism is adjustable to vary the first frequency independently of the second frequency.

43. The vibrational device of claim 40, wherein the first vibration-inducing mechanism and the second vibration-inducing mechanism are pneumatic mechanisms vibrating at a frequency of at least 1,000 Hertz.

44. The vibrational device of claim 40, wherein the first vibration-inducing mechanism and the second vibration-inducing mechanism are electro-magnetic mechanisms vibrating at a frequency of at least 1,000 Hertz.

45. The vibrational device of claim 40, wherein the first vibration-inducing mechanism is controllable independently of the second vibration-inducing mechanism to transfer different forces than the forces transferred by the second vibration-inducing mechanism.

46. The vibrational device of claim 40, wherein the vibration-inducing mechanisms generate vibrational head vibrations having an amplitude of up to approximately 0.120 inches.

47. The vibrational device of claim 40, wherein the vibrational head is positioned perpendicular to a direction of travel of the wire.

48. The vibrational device of claim 40, wherein the papermaking machine includes a papermaking machine frame; and the vibrational device frame includes a truss coupled to the papermaking machine frame and supporting the first vibration-inducing mechanism, the second vibration-inducing mechanism and the vibrational head.

49. The vibrational device of claim 40, wherein the vibrational head is removably coupled to the first and second vibration-inducing mechanisms by a sliding connection.

50. The vibrational device of claim 49, wherein the sliding connection has one of a dovetail profile and a T-shaped profile.

51. The vibrational device of claim 40, further comprising vibration isolators coupled to the vibrational head and positioned to dampen vibrations transmitted from the first and second vibration-inducing mechanisms to the papermaking machine.

52. The vibrational device of claim 40, wherein the vibrational head extends substantially across the wire.

53. The vibrational device of claim 40, wherein the vibrational head has a land area positioned at an angle with respect to the wire and through which the first and second vibrational forces are transmitted from the vibrational head to the wire.

54. The vibrational device of claim 40, wherein the vibrational head includes an upstream portion which slopes away from the wire at an angle of between 0 to 15 degrees to push water into the wire during movement of the wire.

55. The vibrational device of claim 40, wherein the vibrational head includes a downstream portion which slopes away from the wire at an angle of between 0 to 5 degrees to induce a vacuum between the wire and the downstream portion of the vibrational head.

56. The vibrational device of claim 53, wherein the land area is convex.

57. A method of drying a web, comprising:

moving the web to a press felt;

pressing the web against the press felt to remove water from the web;

transferring a vibrational force to the press felt by directly contacting the press felt with a vibrating element;

loosening foreign matter in the press felt with the vibrational force from the vibrating element;

removing loosened foreign matter from the press felt; and

drying the web.

58. The method of claim 57, further comprising changing at least one of a speed at which the press felt is travelling and a frequency of the vibrational force independently of the frequency of the vibrational force and the speed at which the press felt is travelling, respectively.

59. The method of claim 58, wherein the press felt has a cross-machine direction, and wherein changing the frequency of the vibrational force includes changing a frequency of vibrational force transferred to a first section of the press felt in the cross-machine direction and independently changing a frequency of vibrational force transferred to a second section of the press felt in the cross-machine direction.

60. The method of claim 58, further comprising changing an amplitude of the vibrational force transferred to the press felt independently of at least one of a frequency of the vibrational force and a speed at which the press felt is travelling.

61. The method of claim 58, wherein transferring the vibrational force to the press felt includes transferring a first vibrational force with a first vibration-inducing mechanism to a first section of the press felt and transferring a second vibrational force with a second vibration-inducing mechanism to a second section of the press felt disposed a lateral distance from the first vibration-inducing mechanism.

62. The method of claim 61, wherein the first vibration-inducing mechanism is controllable independently of the second vibration-inducing mechanism.

63. The method of claim 61, wherein transferring a first vibrational force includes transferring the first vibrational force to a vibrational head coupled to the first vibration-inducing mechanism.

64. The method of claim 63, wherein the vibrational head is also coupled to the second vibration-inducing mechanism; and transferring a second vibrational force includes transferring the second vibrational force to the vibrational head.

65. The method of claim 63, wherein transferring the second vibrational force includes transferring the second vibrational force to another vibrational head coupled to the second vibration-inducing mechanism.

66. The method of claim 61, wherein the first and second vibration-inducing mechanisms generate vibration at first and second frequencies, the method further comprising independently varying the first frequency by adjusting the first vibration-inducing mechanism.

67. The method of claim 63, further comprising: removing and replacing the vibrational head with another vibrational head during at least one of the moving, pressing, transferring, loosening, removing, and drying steps.

68. The method of claim 58, wherein the press felt is part of a papermaking machine press section having a frame, the method further comprising at least partially isolating the frame from the vibrational force.

69. The method of claim 58, further comprising lubricating the press felt with water upstream of a location where the vibrational force is transferred to the press felt.

70. A papermaking machine, comprising:

a press positioned to receive a web and to mechanically press the web to remove water from the web;

a press felt positioned to receive water pressed from the web;

a vibrational device located adjacent to the press felt and operable to contact and vibrate the press felt; and

a dryer positioned to receive the web from the press and to remove water from the web.

71. The papermaking machine of claim 70, further comprising a lubrication shower positioned upstream with respect to the vibrational device.

72. The papermaking machine of claim 70, wherein the vibrational device is adjustable to change a frequency of vibrational force transferred to the felt.

73. The papermaking machine of claim 72, wherein the vibrational device is adjustable independently of a speed of the press felt.

74. The papermaking machine of claim 70, wherein the vibrational device has at least two vibration-inducing mechanisms, at least one of the vibration-inducing mechanisms controllable independently of another of the vibration-inducing mechanisms to vary vibrational forces transferred to different areas of the press felt.

75. The papermaking machine of claim 70, wherein: the press felt has a cross-machine direction; the vibrational device has a least two vibration-inducing mechanisms; a first one of the vibration-inducing mechanisms is operable to generate a first vibrational force having a first frequency transferred to the press felt; and a second one of the vibration-inducing mechanisms disposed in a cross-machine direction of the press felt from the first vibration-inducing mechanism is operable to generate a second vibrational force having a second frequency transferred to the press felt.

76. The papermaking machine of claim 75, wherein the first vibration-inducing mechanism is adjustable to change the first vibration frequency independently of the second vibration-inducing mechanism.

77. The papermaking machine of claim 75, wherein the first vibration-inducing mechanism is adjustable to change an amplitude of the first vibrational force independently of the second vibration-inducing mechanism.

78. The papermaking machine of claim 75, wherein the first and second vibration-inducing mechanisms have respective vibration heads in contact with the press felt and disposed from one another in the cross-machine direction of the press felt.

79. The papermaking machine of claim 75, wherein the first and second vibration-inducing mechanisms are coupled to a vibration head in contact with the press felt.

80. The papermaking machine of claim 70, wherein the vibrational device has a frame mounted to a frame of the papermaking machine.

81. The papermaking machine of claim 70, wherein the vibrational device is operable to vibrate at a frequency of at least 1,000 Hertz.

82. The papermaking machine of claim 70, wherein the vibrational device includes at least one vibration-inducing mechanism and a vibrational head coupled to the vibration-inducing mechanism and in contact with the press felt.

83. The papermaking machine of claim 82, wherein at least one of the vibration-inducing mechanisms is coupled to the vibrational head via a sliding connection.

84. The papermaking machine of claim 70, wherein the vibrational head extends substantially across the press felt.

85. The papermaking machine of claim 82, wherein the vibrational head has a land area positioned at an angle with respect to the press felt and through which vibrational forces are transmitted from the vibrational head to the press felt.

86. The papermaking machine of claim 82, wherein the vibrational head includes an upstream portion which slopes away from the press felt at an angle of between 0 to 15 degrees to push water into the press felt during movement of the press felt.

87. The papermaking machine of claim 82, wherein the vibrational head includes a downstream portion which slopes away from the press felt at an angle of between 0 to 5

degrees to induce a vacuum between the press felt and the downstream portion of the vibrational head.

88. The papermaking machine of claim 85, wherein the land area is convex.

89. A method of changing performance of a forming section of a papermaking machine having a wire, the method comprising:

providing a vibrational device having a vibrational device frame coupled to the papermaking machine, a vibration-inducing mechanism coupled to the vibrational device frame, and a vibrational head coupled to the vibration-inducing mechanism;

sliding a first vibrational head with respect to the wire and the vibration-inducing mechanism to disconnect the first vibrational head from the vibration-inducing mechanism;

removing the first vibrational head from the vibration-inducing mechanism;

sliding a second vibrational head with respect to the vibration-inducing mechanism to connect the second vibrational head with the vibration-inducing mechanism; and

positioning the second vibrational head in contact with the wire.

90. The method of claim 89, wherein at least one of the sliding steps is performed while the papermaking machine is in operation.

91. The method of claim 89, wherein sliding the first vibrational head includes sliding the first vibrational head between the vibration-inducing mechanism and the wire.

92. The method of claim 89, wherein sliding the second vibrational head includes sliding the second vibrational head between the vibration-inducing mechanism and the wire.

93. The method of claim 89, wherein sliding the second vibrational head includes sliding the second vibrational head onto the vibration-inducing mechanism via a dovetail joint.

94. The method of claim 89, wherein sliding the second vibrational head includes sliding the second vibrational head onto the vibration-inducing mechanism via a T-shaped joint.

95. A vibrational device for use with a papermaking machine, the papermaking machine including a wire for receiving stock flow, the vibrational device comprising:

a vibrational device frame;

a vibration-inducing mechanism coupled to the vibrational device frame; and

a vibrational head coupled to the vibration-inducing mechanism and positioned to directly contact the wire, the vibrational head operable to impart vibrational force to the wire, the vibrational head being removably coupled to the vibration-inducing mechanism via a sliding connection

96. The vibrational device of claim 95, wherein the vibrational head is disconnectable and removable from the vibration-inducing mechanism during operation of the papermaking machine.

97. The vibrational device of claim 95, wherein the sliding connection is a dovetail connection

98. The vibrational device of claim 95, wherein the sliding connection has a T-shaped cross-section.

99. The vibrational device of claim 95, wherein the vibrational head has a land area positioned at an angle with respect to the wire and through which vibrational forces are transmitted from the vibrational head to the wire.

100. The vibrational device of claim 95, wherein the vibrational head includes an upstream portion which slopes away from the wire at an angle of between 0 to 15 degrees.

101. The vibrational device of claim 95, wherein the vibrational head includes a downstream portion which slopes away from the wire at an angle of between 0 to 5 degrees.

102. The vibrational device of claim 98, wherein the land area is convex.

103. The vibrational device of claim 95, wherein the vibrational head has a length substantially the same as a width of the wire.

104. The vibrational device of claim 95, wherein the vibration-inducing mechanism is operable to generate a vibrational force having a frequency of at least 1,000 Hertz.

105. The vibrational device of claim 95, wherein the vibration-inducing mechanism is a first vibration-inducing mechanism, the vibrational device further comprising at least one additional vibration-inducing mechanism, the vibrational head being removably coupled to the at least one additional vibration-inducing mechanism via a sliding connection.

106. The vibrational device of claim 105, wherein the first vibration-inducing mechanism and the at least one additional vibration-inducing mechanism are disposed along a cross-machine direction of the wire.

107. A vibrational device for use with a papermaking machine, the papermaking machine including a wire for receiving stock flow, the vibrational device comprising:

a vibrational device frame;

at least one vibration-inducing mechanism coupled to the vibrational device frame; and

a vibrational head coupled to the at least one vibration-inducing mechanism and in direct contact with the wire to impart the vibrational force to the wire, the vibrational head including at least one of an upstream portion which slopes away from the wire and a downstream portion which slopes away from the wire.

108. The vibrational head of claim 107, wherein the upstream portion slopes away from the wire at an angle of between approximately 0 to 15 degrees.

109. The vibrational head of claim 107, wherein the downstream portion slopes away from the wire at an angle of between approximately 0 to 5 degrees.

110. The vibrational device of claim 107, wherein the at least one vibration-inducing mechanism and the vibrational head are coupled via a sliding connection enabling removal of the vibrational head from the vibrational device.

111. The vibrational device of claim 110, wherein the sliding connection is one of a dovetail connection and a T-shaped connection.

112. A method of forming a web comprising:

discharging stock flow from a headbox onto a wire, the stock flow including water and fibers;

transferring a vibrational force to the wire by directly contacting the wire with a vibrating element;

pushing water into the wire with a sloped upstream portion of the vibrating element;

inducing a vacuum between the wire and the vibrating element with a downstream portion of the vibrating element; and

draining at least some of the water from the stock flow to cause the fibers to form a web.

113. The method of claim 112, wherein transferring a vibrational force to the wire includes transferring a vibrational force to an underside of a substantially horizontal wire.

114. The method of claim 112, wherein the vibrating element is a vibrational head coupled to a vibrating device in a papermaking machine, the method further comprising replacing the vibrational head with another vibrational head during operation of the papermaking machine.